

How to make the Dutch grid smarter : lessons from stakeholder interviews and previous smart grid experiments

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How to make the Dutch Grid smarter Lessons from Stakeholder interviews and previous Smart Grid experiments

Category: 1) Transition dynamics and delimitation

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Abstract

Future developments, such as large scale introduction of both intermittent renewable energy sources (wind, PV) and new loads (EV's, heat pumps) are expected to pose great challenges for the aging electricity grids in the Netherlands. 'Smart Grids' is the new buzzword in discussing the introduction of more intelligent solutions for upgrading our electrical energy infrastructure. Despite the promise that Smart Grids hold in the minds of many, it is unclear what these intelligent solutions exactly constitute, how they should be implemented in practice and how they will actually affect the reliability and costs of the system. To find this out, testing various Smart Grid concepts in pilot projects is necessary.

For this paper, past and present Smart Grid initiatives were analyzed and in-depth interviews were conducted with a large number of stakeholders in the field, using the Strategic Niche Management (SNM) framework. Previous SNM studies focused mainly on 'analyzing' past efforts. Here, we would like to focus more on the management promise of SNM by arguing for a particular focus for future experiments.

We will argue that current initiatives focus too much on technical and/or economic aspects of Smart Grids whereas a broader socio-technical focus is required. More attention should be paid to three aspects in particular:

1. Regulation: it is unclear to what extent the current regulatory regime in the Netherlands is capable of a. facilitating more radical changes in the way the electrical energy infrastructure should be organized and b. to what extent exceptions should be made for pilot projects.
2. Business models: it is also unclear which party should play which role in a new and more intelligent energy infrastructure, who will reap particular benefits and who should pay the costs
3. Consumers: one key aspect to all Smart Grids concepts is the responsive user. Currently too little attention is being paid to what role individual consumers, households and larger groups of people will or can play and how they can be engaged to participate in experiments and react to incentives in reality.

We conclude with some practical design criteria for new, more intelligent Smart Grid experiments that will take these aspects into account.

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